

## OFFICIAL SYLLABUS

# MATH 111 – MATHEMATICS FOR LIFE

Adopted - Fall 2010 (Committee: Z. Agustin, B. Kniepkamp, S. Rigdon, E. Sewell, S. Staples)

**Catalog Description.** [Intro.] Focuses on mathematical reasoning and real-life problems. Including: management science, coding, social choice and decision making, size and shape, and modeling.

**Textbook:** *Using and Understanding Mathematics: A Quantitative Reasoning Approach, Fourth Edition*, by Jeffrey Bennett and William Briggs.

Week		
1	<b>CHAPTER 1 THINKING CRITICALLY</b> <b>1A – Recognizing Fallacies:</b> We begin our study of critical thinking by looking at deceptive arguments, or fallacies.	<b>1B – Propositions and Truth Values:</b> We define and study basic components of logic, including propositions, truth values, and truth tables. We will also consider the logical connectors <i>and, or, and if ... then.</i>
2	<b>1C – Sets and Venn Diagrams:</b> We explore the way in which propositions can express relationships between sets, or categories, and use Venn diagrams to help us visualize these relationships.	<b>CHAPTER 2 APPROACHES TO PROBLEM SOLVING</b> <b>2A – The Problem Solving Power of Units:</b> We explore the powerful technique of working with units, both to solve problems and to check answers.
3	<b>2B – Standardized Units: More Problem Solving Power:</b> We review standardized units of both the U.S. customary and the metric systems, and investigate units for problems involving temperature, energy, density, and concentration.	<b>2C – Problem-Solving Guidelines and Hints:</b> We extend the techniques of the previous units to form a general set of guidelines and hints for effective problem solving.
4	<b>Review for Exam 1</b>	<b>EXAM 1</b>
5	<b>CHAPTER 3 NUMBERS IN THE REAL WORLD</b> <b>3A – Uses and Abuses of Percentages:</b> Percentages can be surprisingly subtle and difficult to interpret. We study both uses and abuses of percentages.	<b>3B – Putting Numbers in Perspective:</b> Many of the numbers we hear daily are extremely large or small. We look at several techniques for giving meaning to such numbers.
6	<b>3C – Dealing with Uncertainty:</b> We discuss ways of dealing with the inevitable uncertainty in numbers heard daily in the news. We also consider the types of errors that affect measured numbers.	<b>3D – Index Numbers: The CPI and Beyond:</b> We study the important role of index numbers in modern life, paying special attention to the Consumer Price Index (CPI).
7	<b>3E – How Numbers Deceive: Polygraphs, Mammograms, and More:</b> Numbers may seem straightforward, but they can be deceiving unless we interpret them carefully. We will study several interesting cases that relate to everyday issues.	<b>Review for Exam 2</b>
8	<b>EXAM 2</b>	<b>CHAPTER 4 FINANCIAL MANAGEMENT</b> <b>4B – The Power of Compounding:</b> We explore the way in which you can increase your savings through the mathematics of compound interest.
9	<b>4C – Savings Plans and Investments:</b> We calculate the future value of savings plans in which you make monthly deposits and study investments in stocks and bonds.	<b>4D – Loan Payments, Credit Cards, and Mortgages:</b> Nearly everyone has some type of loan. We calculate monthly payments and explore loan issues.
10	<b>4E – Income Taxes:</b> We explore the mathematics of income taxes and a few of the hot political issues that surround them.	<b>4F – Understanding the Federal Budget:</b> Everyone's personal finances are ultimately tied to government finances. We examine the federal budget process and related political issues.
11	<b>Review for Exam 3</b>	<b>EXAM 3</b>
12	<b>CHAPTER 5 STATISTICAL REASONING</b> <b>5A – Fundamentals of Statistics:</b> We discuss how statistical studies are conducted, with emphasis on the importance of sampling.	<b>5B – Should You Believe a Statistical Study?</b> We develop eight useful guidelines for evaluating statistical claims.
13	<b>5C – Statistical Tables and Graphs:</b> We investigate basic tables and graphs, including frequency tables, bar graphs, pie charts, histograms, and line charts.	<b>10A – Fundamentals of Geometry:</b> Geometry plays a vital role in human culture, in everything from art and architecture to advanced engineering. We study fundamental ideas of geometry, including formulas for finding the perimeter, area, and volume of common objects.
14	<b>10A – Fundamentals of Geometry: (Continued)</b>	<b>12A – Voting: Does the Majority Always Rule?</b> In elections with more than two candidates, there are several acceptable ways to choose a winner. We study these methods and see that different methods can lead to different winners.
15	<b>Review for the comprehensive Final Exam</b>	<b>Review for the comprehensive Final Exam</b>